

Fig. 1.

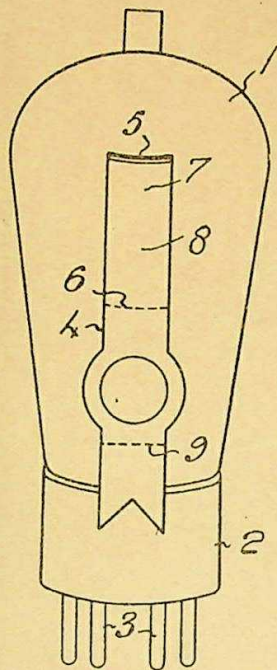


Fig. 3.

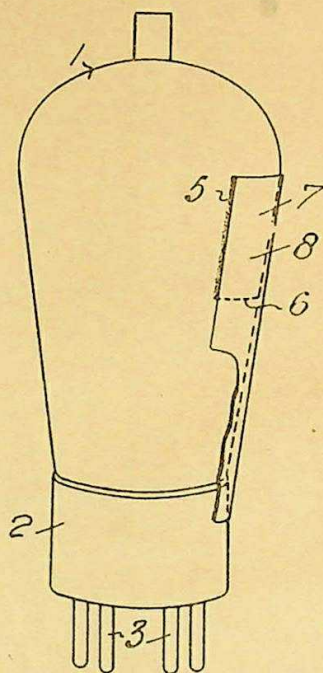
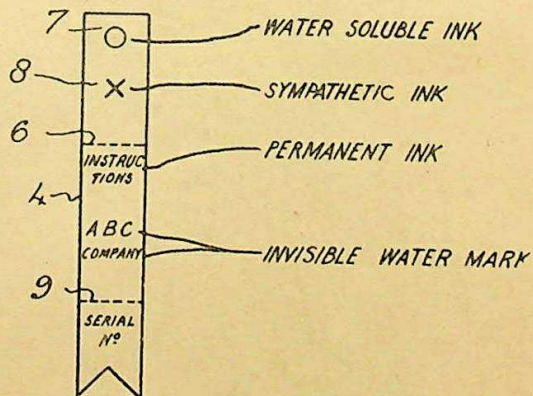


Fig. 2.



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EXAMINER'S

COPY

DIV. 35

101,534



Application Date : 21st May, 1936. No. 2014/36.

Under International or Intercolonial Arrangements.
(United States of America, 7th June, 1935.)

Applicant (Assignee of Actual Inventor)	MARCONI'S WIRELESS TELEGRAPH COMPANY, LIMITED.
Actual Inventor	RALPH GORDON RICHARDS, of New Jersey, U.S.A.
Application and Complete Specification ..	Accepted, 6th July, 1937.
Acceptance Advertised (Sec. 50) ..	22nd July, 1937.

Classes 54.3; 06.1; 06.4.

Drawing attached.

COMPLETE SPECIFICATION.

"Improvements in or relating to labels for radio valves and the like."

We, MARCONI'S WIRELESS TELEGRAPH COMPANY, LIMITED, a company organised under the laws of Great Britain, of Marconi Offices, Electra House, Victoria Embankment, London, England, Electrical Engineers, hereby declare this invention and the manner in which it is to be performed, to be fully described and ascertained in and by the following statement:—

10 This invention relates to means for marking articles so as to enable a purchaser to determine easily and quickly whether the article is new and genuine, and more particularly to means for marking radio valves and similar articles which do not show visible evidence of use, and which may not be readily identified as the product represented.

20 Purchasers of radio valves and similar articles which do not change to any appreciable extent in appearance during use find

it difficult to determine by inspection whether valves offered them are new and genuine. Packing the articles in sealed cartons which must be destroyed in order to free the article for use makes more difficult the sale of used valves as new valves, but such packing is rather expensive, and both the valve and the packing can be counterfeited.

One object of this invention is to mark 10 articles such as radio valves or lamps in such a way that the purchaser can easily determine by a simple test whether the article is genuine, and can also tell by inspection whether the article has 15 been used. Another object is to provide a label that will in effect guarantee that the radio valve is of the origin represented, and also show the extent to which the valve has been used. A further object 20 is to provide a label which is difficult to

counterfeit, and which cannot be transferred from a genuine valve to a counterfeit or used valve.

In carrying out this invention there is provided a marking that will permanently change in appearance if the article is used, and which is not feasible to replace. Preferably radio valves and similar articles which rise in temperature when used, are marked by firmly securing to them by glue or similar adhesive a label or strip of paper or similar sheet material which is printed or marked with a sympathetic ink which permanently changes in colour or appearance when heated to the temperature attained by the label when the valve or article is used. In addition the glued portion of the label may be marked with a water soluble ink or colour which will run and change the appearance of the label if an attempt is made to soak or steam it off the valve. One end of the strip or label is preferably left free, and some identifying mark, such as the trademark of the maker, may be incorporated in the paper near the free end of the label. This mark is so made that it is visible only while the paper is wet, hence by wetting the free end of the label the purchaser can determine whether the valve is genuine.

The invention is illustrated in the accompanying drawings in which—

Figure 1 shows a radio valve with this invention applied thereto;

Figure 2 shows diagrammatically the printed divisions into which a label as provided by this invention may be divided; and

Figure 3 shows a radio valve with a label in accordance with this invention shown in schematic section.

Referring to Figure 1, a thermionic valve of conventional construction has an envelope 1, a base 2, and contact pins 3. While the valve illustrated has the conventional tapered form of bulb, the invention may be applied with equal facility to any other form of electron discharge device, e.g., a valve with a metal or glass envelope with spherical or cylindrical walls. A label 4 consisting of a strip of paper or similar material is attached at its upper end by the adhesive 5, such as gum or glue, to the side wall of the envelope, with the long axis of the label extending, in the example shown,

parallel to the side of the bulb. The gummed portion of the label in this example is extended from a region adjacent the maximum diameter of the bulb downwards on the depending label to a line 6 which may be about one-third of the distance from the upper end of the label. Whatever the shape of the envelope the gummed portion of the label is preferably attached to the bulb at an area which attains the highest operating temperature when the valve is in use.

The label may be manufactured of a paper with an invisible water mark, the mark preferably being made to indicate the name or monogram of the maker of the article to be labelled and being at the depending end of the label. Such paper is known in which the water mark remains invisible except when wetted, at which time the marks become clearly visible. Paper containing such marks is difficult and expensive to make and in commercial practice is difficult to counterfeit by un-authorised persons. With the paper of the label limited to authorised manufacturers, a purchaser, therefore, may identify the article to which a label constructed in accordance with this invention is attached by simply moistening the lower or depending end of the label.

To guard against the removal by soaking of a genuine label and the placing of it on a used or spurious article, there is printed on the label at the place where it is glued to the bulb of the radio valve some mark or design in water soluble ink which will run and clearly indicate by its appearance that an attempt has been made to soak off the label. The monogram or trade mark of the manufacturer, for example, may be printed in water soluble ink in the area indicated at 7.

To further protect the purchaser of a radio valve labeled in accordance with the invention, there is printed upon another area 8 of the glued portion of the label a mark or character in sympathetic ink. This ink may be of the type which permanently changes in colour after being heated to a certain temperature for a predetermined time, and may be so selected that the heat from the radio valve to which the label is attached will permanently transpose and change in colour the pigment of the ink on the label. It has been found that an organic

colouring matter, such as erythrocin, applied to the label in a carrying agent, such as for example a diluted shellac, permanently and markedly changes in colour when maintained for a time at a temperature of about 150°C. to 120°C. A permanent ink of a desired colour may conveniently be placed near or adjacent the sympathetic ink on the label to aid in judging the colour of the sympathetic ink. Further, an irregular design may be outlined by reverse printing to render it difficult to paint or ink over the background of sympathetic ink.

The lower end of the label may be perforated, as shown at 9, and the portion below line 9 may be printed with a serial number or other identifying mark to correspond with a similar number or mark on the gummed portion of the label. The seller of the valve may retain the portion below the perforation for the purpose of future identification of the radio valves.

It will be apparent, therefore, that a valve labelled in accordance with this invention, when operated for a predetermined time, directly indicates by the colour of the ink in area 8 the fact that the valve has been used, and hence thereafter is notice to all that the valve is not new and unused.

In Figure 2 a label has been schematically represented as an oblong strip of paper. This strip of paper with its invisible water marks has been shown divided into various printing areas onto which may be impressed the water soluble and heat responsive inks, above mentioned. On still another portion of the label may be printed the ordinary printer's ink instructions for testing the valve for age and genuineness.

In Figure 3 the label is shown with its longitudinal axis parallel to the body of the valve with the lower or loose end of the label bearing against the base of the valve. The upper end of the label is glued at 5 over an extended area to cause the upper end of the strip snugly to engage the rounded wall of the bulb. By gluing the strip in this manner, the paper is transversely cupped or concaved throughout its length, which serves to stiffen the strip of paper throughout its length and hence causes the lower end of the strip to hang or lie in a curved plane substantially coextensive with the glued area of the strip label. While the

lower end of the label may be bent outwardly for wetting, it is apparent that this lower end will return to its original position upon being released. By so transversely cupping the strip, it may at all times lie snugly adjacent the bulb of the radio valve and out of the way for handling.

A radio valve or similar article labelled in accordance with this invention is therefore characterised by the fact that the article may be positively identified as the product of the manufacturer represented, and by the fact that prior use of the article is permanently and visibly indicated on the exterior wall of the article with provision for effectively precluding counterfeiting of the label or the article to which it is attached.

Having now fully described and ascertained our said invention and the manner in which it is to be performed, we declare that what we claim is:—

1. A label for a radio valve or similar devices comprising a sheet of material adapted to be permanently attached to the exterior of the wall of the device and having on the surface remote from said wall an ink which changes permanently in appearance at the temperature attained by the said wall when the device is operated.

2. A label for a radio valve or similar device comprising a sheet of paper gummed on one side and printed on the opposite side with ink which changes permanently in appearance when heated to the temperature attained by the bulb of said device in use.

3. A label for a radio valve or similar article comprising a strip of paper having a portion of one side coated with adhesive and having on its surface opposite said portion an ink which changes appearance permanently when heated.

4. A label as claimed in any of the preceding claims and having near one end a mark which is substantially invisible until the label is wetted.

5. A label as claimed in any of the preceding claims and having a mark in water soluble ink.

6. In combination a radio valve or like device and a label as claimed in any of Claims 1 to 5 secured over a portion of its length to the exterior of the wall of the envelope of said device.

7. A label comprising a strip of paper with an adhesive at one end and the other end treated to develop a visible design when wetted.
- 5 8. An oblong label having a gummed portion carrying water soluble ink and heat responsive ink, and an ungummed portion having a design visible only upon predetermined treatment of said portion.
- 10 9. An indicator for a radio valve or like device comprising a label with a gummed portion, a mark on said gummed portion of sympathetic ink responsive to heat, and

means for judging the colour of said mark said means comprising another mark on said label of permanent ink.

10. Labels for radio valves and the like substantially as herein described and illustrated.

Dated this 20th day of May, 1936.

MARCONI'S WIRELESS TELEGRAPH COMPANY,
LIMITED,

By its Patent Attorneys,
EDWD. WATERS & SONS.

Witness—N. L. Doble.